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winter months, chiefly in the capture of halibut, which they carry to New York. These vessels, however, take also a considerable quantity of codfish. In addition to the Gloucester vessels already mentioned, which fish for halibut throughout the year, there were eight vessels, of 647 tons, which fished for halibut in the winter season and engaged in other fisheries, generally the cod fishery, from May to November.

The vessels of the George's fleet, though their chief object is the capture of cod, take considerable quantities of halibut, which are brought to Gloucester fresh; a few also are sometimes taken by the Western bank cod fleet, and a still smaller quantity by the Boston market fleet. In 1879, and probably in 1880, there were a few small vessels on the coast of Maine which engaged in the fresh-halibut fishery for three or four months in the summer, carrying their fish chiefly to Portland. The total catch of halibut on the New England coast for 1879 is estimated at 14,637,000 pounds, distributed as follows:

Gloucester halibut fishery	8,300,000
Gloucester vessels fishing in winter only.....	1,000,000
New York halibut catchers.....	3,000,000
Gloucester, George's fleet (incidental).....	2,000,000
Western bank cod vessels (incidental).....	37,000
Small vessels on the coast of Maine and Massachusetts.....	300,000

Total.....14,637,000

In 1885 the halibut fleet of Gloucester is reduced to one-fourth of its former size, and the total catch is estimated at from three to five million pounds.

It is evident that within a few years the American off-shore halibut grounds will be so depleted that the fresh-halibut fishery on our coasts will be abandoned. We shall then derive our chief supply from the waters of Greenland and Iceland, where several vessels go each year to bring back cargoes of salt "flitches." Halibut will come into our markets only in a smoked condition, and the species will be as unfamiliar in our fish-markets as it is in those of the old world. The life-history of the species must be recorded now, for it can never be made so completely hereafter. This is the writer's excuse for having presented in this place so full a biography of the halibut.

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TRACES OF PREHISTORIC MAN ON THE WABASH.

BY JOHN. T. CAMPBELL.

DURING the year 1884 I was employed as civil engineer for the construction of a levee from the mouth of Big Raccoon creek on the east side of the Wabash river, which is the west boundary of Parke county, Indiana. The levee was built as close to the river bank as practicable, and was aimed to be the height

of the highest bottom land, though this is about seven feet below the highest floods, such as occurred in the summer of 1875 and winter of 1883. There is one very high bottom about four and a half miles south of the mouth of Raccoon creek, locally known as Blue Grass landing. Forty to fifty years ago this place was well known to flat and steamboat men. The Wabash was then the great commercial thoroughfare for all this country, and this being a good landing, backed by good farms near by, and covered with the heavy, green carpet of blue grass (*Poa pratensis*), was also one of the most beautiful spots on the river. Here it was, according to Dr. Collett, State geologist, report of 1879, that the Kentucky soldiers of Harrison's army, while marching from Fort Harrison to Tippecanoe to fight the Indians there, found the original Kentucky blue grass, and on their return gathered and carried home the seed, which is now an important article of Kentucky commerce.

The old settlers had a tradition that this spot (a quarter of a mile long up and down the river) was an ancient Indian camping ground. What reasons they had for so believing I never learned. But during my frequent surveys and inspections of the work before mentioned, I had abundant reason to know that such was the fact. The surface of the ground, however, indicates nothing of the kind. The place is not overflowed more than once in seven years on the average. The bottoms are over a mile wide, and much the lowest back next the hills. The few floods that have overflowed this high bank during recent years (I mean historically recent, not geologically) have flowed nearly square across it, and since the timber has been cut away, has washed small channels from four to ten feet deep toward the eastern hills. These channels are deepest next to the river, growing shallower till they disappear at distances from one-quarter to three-quarters of a mile from the river. In the bottom of these channels Mr. Samuel D. Hill, drainage commissioner of the county, was the first to observe little heaps composed of stones about the size of apples or potatoes, and about a bushel in quantity. They were in the more recently cut channels, the current being sufficient to remove the bottom earth but not enough to disturb the order of the stones. I said the stones were in heaps; this is not quite correct. They were about three layers deep and two and a half to three and a half feet wide, and slightly oval in shape. They were

underlaid with one to three inches of charcoal, and on top of the stones, and scattered down streamward from them, were mussel shells and a few bones of small animals too much decayed and fractured to be identified ; but the leg of a crane or pelican near by was so well preserved that every joint of the foot to the nail was in perfect shape. But on handling it soon crumbled into lime dust. So it was with the mussel shells, except a half shell, which was as fresh as if taken recently. The stones were such as lie at the upper end of the river bars, mostly crystalline, some gray, others blue. All had originally been smooth, water-worn, but were broken into angular fragments, segments, cubes and zones. I put the pieces together in several instances and with them completed (filled out) smooth, rounded water-worn stones. All had a dark smoky look as if having been burned in the fire. I should think that those we examined and those we saw without special examination would amount to seven cubic yards. One piece of white limestone, about the size and much the shape of a brick, when I touched it I found to be slaked into lime.

The charcoal underneath the layers of stones on the coal, their smoky appearance, their peculiar fractures, all show that they had been placed on a fire. The mussel shells and bones on and near these stones indicate that the purpose of that fire was for cooking. It is very difficult to open the shells of a live mussel (Wabash oyster), but when baked on hot rocks they easily yield.

I say these stones were found in heaps. Such was true of five separate piles or heaps, from which I infer that all the stones found in the largest and oldest channel had been once so piled, as they were smoked and broken in the same way, and seemed to amount in quantity to ten wagon loads or about seven cubic yards.

When were these stones piled and used as above described ? "That is the question." This place or piece of bottom is very seldom overflowed now, consequently it is building up from sedimentation very slowly. The heaps, or piles of stones were found about five feet beneath the present surface, and on the present surface bur oak trees are standing that are two hundred and fifty years old. These grew from acorns borne by a previous generation of trees, and the acorns from which they grew, judged by the surface roots of the trees, were not more than two feet beneath the present surface of the ground. The under side of the surface roots would be a little below the position of the acorn when the

tree started. It is my judgment that not less than five hundred years have elapsed since these stones were covered by sedimentation, and I should think the time would not exceed one thousand.

As stone axes, knives and arrow-heads were searched for among these stones and not found, I think they were not used by the people who used the stones for cooking. Among so many stones of that kind, and in a camp, some tool would have been dropped. Such tools are found on the present surface in every neighborhood about here. If this should prove correct (that none were used by this people), it would prove that the stone axe is not so old as we have heretofore thought it to be. Or, did these people take extra care of their tools? Then why did the much later Indians having equal use for *their* tools, drop them all over the country? Or, were these suddenly abandoned on the introduction of steel tomahawks, knives and fire arms?

There are no Indian mounds within fifty miles of this camp. It was, therefore, hardly the work of the mound-builders. My ancestors for three generations were pioneers, and well acquainted with Indian character and customs from 1760 to 1820, and from Massachusetts to the Wabash, and while I have heard very many of their Indian stories I have never heard of their seeing anything like what I have described, nor do I remember to have seen it described in any account I ever read. Is this a new feature of an ancient subject? or am I illy informed on it?

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EDITORS' TABLE.

EDITORS: A. S. PACKARD AND E. D. COPE.

— The session of the American Association for the Advancement of Science for 1885 has just adjourned its session at Ann Arbor, Michigan. The meeting presented many admirable features. Other things being equal, a university town has superior advantages for the conduct of scientific gatherings. The spirit of the place is congenial. Facilities for presentation and illustration are at hand. The university buildings furnish excellent assembly rooms. The social conditions are appropriate and not distracting. Such were the circumstances which attended the late meeting, and the members experienced their benefits to the full. The number of members in attendance (510) though smaller